



## Deep Sea Glow

Deep down in the ocean is very dark because little sunlight reaches the depths. Sunlight is white light, made up of seven colours—red, orange, yellow, green, blue, violet (the colours of a rainbow). As sunlight travels down into the ocean, each colour is absorbed until only violet light reaches water a few hundred metres deep. This makes the lower depths of oceans very dark, so plants and animals produce a blue-green light called bioluminescence.

Bioluminescent light can be used:

- as a lure to attract prey
- to communicate with other members of their species (possibly for mating) or
- to cancel out their silhouette against the water's surface to predators looking up from below.

Bioluminescent light is created by a chemical reaction between luciferin, oxygen and the enzyme luciferase. It is different to phosphorescence (which absorbs light, then emits light when it is dark). Bioluminescence is also displayed in land animals such as fireflies.

Hatchetfish live in open water. Some species have rows of silver oblong patches (light reflectors) and pink, light-producing organs facing downwards, so their silhouette is hidden from predators beneath them.

Siphonophores are a jelly-like colony of single celled animals. Collections of siphonophores can reach up to 40 metres. Their bioluminescent tentacles seem to lure prey.

Female dragonfish have a glowing tip on their chin barbel that may attract prey.

### **More Information**

NORFANZ Deep Sea Voyage <http://www.oceans.gov.au/norfanz/extracreatures.htm>

Scientific American                      Ask the Experts                      19 April 1999  
What is chemiluminescence?  
[http://www.sciam.com/print\\_version.cfm?articleID=0005A1A8-5B7F-1C72-9EB7809EC588F2D7](http://www.sciam.com/print_version.cfm?articleID=0005A1A8-5B7F-1C72-9EB7809EC588F2D7)

Australian Museum Online              Black Dragonfish  
<http://www.amonline.net.au/fishes/fishfacts/fish/iatlan.htm>

Image Quest Marine Siphonophores  
<http://www.imagequest3d.com/catalogue/jellyfish/siphonophorae.htm>

BBC Blue Planet Dragonfish <http://www.bbc.co.uk/nature/blueplanet/factfiles/fish/dragonfish.shtml>

The Bioluminescence Web Page              <http://www.lifesci.ucsb.edu/~biolum/>

Glow Exhibit              <http://www.glowexhibit.com/>

HBOI More About Bioluminescence              <http://www.biolum.org/>